Effective Health Care

Pharmacological and Non-pharmacological Treatments for Sleep Disorder in Night Shift Workers Nomination Summary Document

Results of Topic Selection Process & Next Steps

- The topic area, *Pharmacological Treatments for Sleep Disorder in Night Shift Workers*, was found to be addressed by various reviews and guidelines, the most recent of which was the following Cochrane systematic review, which was published in 2014. Given that this existing systematic review covers this nomination, no further activity will be undertaken on this topic area.
  - Liira, J., Verbeek, J., Costa, G., Driscoll, T. et al. Pharmacological interventions for sleepiness and sleep disturbances caused by shift work. Cochrane Database Syst Rev 2014; (8): 1-37.

- The topic area, *Non-pharmacological Treatments for Sleep Disorder in Night Shift Workers*, is not feasible for a full systematic review due to the limited data available for a review at this time. This topic could potentially be considered for new research in comparative effectiveness.

Topic Description

Nominator(s): Individual

Nomination Summary: The nominator is interested in the effectiveness of therapies for sleep problems resulting from working night shifts. She is also concerned about other symptoms associated with sleep problems e.g., lack of alertness, fatigue, psychological distress, changes in body weight.

Staff-Generated PICO
Population(s): Night shift workers (including night shift nurses) suffering from sleep problems.
Intervention(s): Pharmacological (e.g., caffeine, modafinil, armodafinil, hypnotics and melatonin) and non-pharmacological treatments (e.g., light therapy, behavioral therapy, diet)
Comparator(s): Above treatments compared to each other, placebo, or no treatment.
Outcome(s): Improvements in sleep problems (e.g., sleepiness, insomnia) and symptoms that have been associated with sleep problems (e.g., lack of alertness, fatigue, psychological distress, changes in body weight) as well as general functioning, quality of life, intervention harms/side effects, and occupational safety.

Key Questions from Nominator: What is the effectiveness of treatments for sleep disorders and related symptoms in night shift workers?

Considerations

- More than a quarter of shift workers in the US provide health care support (including nurses). The prevalence of shift work disorder among all shift workers varies between 10% and 23%.
- Shift work disorder is defined by the American Academy of Sleep Medicine (AASM) as a sleep disorder characterized by sleepiness and insomnia. More specifically, the diagnostic criteria of shift work disorder outlined by AASM's International Classification of Sleep Disorders-2 (ICSD-2) include the following:[1]
    a. complaints of insomnia or excessive sleepiness temporally associated with a recurring work schedule in which work hours overlap with the usual time for sleep
    b. symptoms must be associated with the shift work schedule over the course of at least one month
    c. sleep log or actigraphic monitoring for ≥7 days demonstrates circadian and sleep-time misalignment
    d. sleep disturbance is not better explained by another sleep disorder, mental disorder, a medical or neurological disorder, medication use or substance use disorder.
- Pharmacological options for the management of shift work disorder include stimulants (e.g., caffeine, modafinil and armodafinil), hypnotic agents (e.g., zopiclone and temazepam), and melatonin and melatonin receptor agonists. Non-pharmacological options used to treat this condition include light therapy, rest breaks, naps, exercise, shorter shifts, and programs/strategies to combat fatigue.
- The topic area, *Pharmacological Treatments for Sleep Disorder in Night Shift Workers*, was found to be addressed by a recent Cochrane Systematic Review titled, *Pharmacological interventions for sleepiness and sleep disturbances caused by shift work*.
    - Stimulant-type agents, modafinil and armodafinil, were found to decrease sleepiness and increase alertness. However, both modafinil and armodafinil were associated with adverse effects like headache, nausea and elevation in blood pressure. Caffeine, in addition to pre-shift naps prior to night shifts, reduced sleepiness. The hypnotic agent, zopiclone, did not elongate daytime sleep significantly. Low quality evidence suggested that melatonin increased sleep length during daytime sleep and night sleep but does not influence sleep latency time or the duration between full wakefulness and sleep.
- Our search found limited evidence for the topic area, *Non-pharmacological Treatments for Sleep Disorder in Night Shift Workers*. A scan of the literature yielded fewer than 10 primary research studies of non-pharmacologic interventions, including light therapy and pre-night shift napping. Evidence on the influence of diet in treating this condition or symptoms of this condition is also lacking in literature.
- We identified few studies focused specifically on nurses or other health care workers. We also found little evidence on the effects of interventions for shift-related fatigue or sleepiness and shift work disorder on patient safety.

[1] American Academy of Sleep Medicine (AASM) (2005) International classification of sleep disorders, revised: Diagnostic and coding manual (ICSD-2). Westchester, IL: AASM.